

ABSTRACT OF THE INVENTION

Various logic elements such as SR flip-flops, JK flip-flops, D-type flip-flops, master-slave flip-flops, parallel and serial shift registers, and the like are converted into non-volatile logic elements capable of retaining a current output logic state even though external power is removed or interrupted through the strategic addition of ferroelectric capacitors and supporting circuitry. In each case, the building blocks of a cross-coupled sense amplifier are identified within the logic element and the basic cell is modified and/or optimized for sensing performance.